

Table 4: Pol

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
Pro(71-79 LAI)	RT(59-67) • Clade A/B/D consensus, HLA-A28 subtype, S. Rowland-Jones, pers. comm.	ITLWQRPLV	?	human(A*6802)	[Brander & Walker(1997a)]
Pro(71-79 LAI)	RT(59-67) • Clade A/B/D consensus, HLA-A*7401, S. Rowland-Jones, pers. comm.	ITLWQRPLV	?	human(A19)	[Brander & Walker(1997a)]
Pro(85-93 Clade D)	RT(86-94) • Clade D, HLA-A*6802, S. Rowland-Jones, pers. comm.	DTVLEEMNL	?	human(A28)	[Brander & Walker(1997a)]
Pro(75-84 MN)	RT(131-140)	VLVGPTPVNI	<i>In vitro</i> stimulation	human(A*0201)	[Konya et al.(1997)]
	• Peptide predicted to be reactive based on HLA-A*0201 binding motif				
	• Peptide could stimulate CTL in PBMC from 5/6 seronegative donors				
	• Peptide located in a highly conserved region of protease				
	• Both 9-mer and 10-mer could stimulate CTL: VLVGPTPVNI and LVGPTPVNI				
	• Binding affinity to A*0201 was measured, $C_{1/2max}\mu M$				
	• MA1 variant of Pr(75-84 MN), with substitutions V77, G78, and P79 gave reduced binding and				
	CTL recognition				
RT(LAI)	RT(158-167)	SPIETVPVKL	HIV-1 infection	human(A2,B61)	[van der Burg et al.(1997)]
	• Recognized by CTL from a long term survivor, EILKEPVGHGV was also recognized				
	• Highly conserved across clades				
RT(160-184 HXB2)	RT(160-184)	IETVPVKLKPGMDGP-KVKQWPPLTEE	HIV-1 infection	human(B8)	[Walker et al (1989)]
	• One of five epitopes defined for RT specific CTL clones in this study				

HIV CTL Epitopes

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(18-26)	RT(173-181)	GPKVKQWPL	HIV-1 infection	human(B8)	[Meier et al.(1995)]
		• HIV proteins with mutations in this epitope allowed transactive inhibition of specific CTL mediated lysis			
RT(173-181)	RT(173-181)	GPKVKQWPL	?	human(B8)	[Goulder et al.(1997e)]
		• Included in a study of the B8 binding motif			
RT(185-193 LAI)	RT(173-181)	GPKVKQWPL	no CTL shown	human(B8)	[Sutton et al.(1993)]
		• Predicted epitope based on B8 binding motifs, from larger peptide IETVPPVKLKPQMDGPKVQWPPLTEE			
RT(185-193 LAI)	RT(173-181)	GPKVKQWPL	HIV-1 infection	human(B8)	[Klenerman et al.(1995)]
		• Naturally occurring antagonist GPRVKQWP found in viral P BMC DNA and RNA			
RT(205-219 BRU)	RT(193-207)	CTEMEKEGKISKIGP	recRT injection	murine(H2 ^k)	[De Groot et al.(1991)]
		• Murine and human helper and CTL epitope			

Location	WEAU	Sequence	Immunogen	Species (HLA)	References
RT(205-219)	RT(193-207)	CTTEMIEKEGKISKICGP	HIV-1 infection	human(broad)	[Hosmalin et al.(1990)]
	• Murine and human helper and CTL epitope				
RT(206-214)	RT(194-202)	TEMEAEGKII	peptide on pulsed irradiated splenocytes	C3H/HeJ mice	[Leggatt et al.(1997)]
	• Ala substituted nonamer-peptide used to test a non-radioactive assay for murine CTL recognition of peptide-MHC class I complexes				
	• The new assay is CTL adherence assay (CAA), and is based on the discovery that CTL develop adhesive properties upon TCR triggering				
	• Substitutions in TEMEAEGKII that reduce cytolytic activity were correctly detected by CAA				
RT(262-270 IIIB)	RT(262-270)	TVLDVGDAY	HIV-1 infection	human(B35)	[Wilkes et al.(1996)]
	• Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study				
RT(267-277)	RT(263-273)	VLDVGDAYFSV	<i>in vitro</i> stimulation	human(A*0201)	[van der Burg et al.(1996)]
	• High dissociation rate, but immunogenic in primary CTL induction after repeated stimulations with peptide				
	• CTL generated by <i>in vitro</i> stimulation of PBMC derived from uninfected individual				
RT(267-277)	RT(263-273)	VLDVGDAYFSV	<i>in vitro</i> stimulation	human(A2)	[van der Burg et al.(1995)]
	• Binds HLA-A*0201 – CTL generated by <i>in vitro</i> stimulation of PBMC from an HIV negative donor				
	• VLDVGDAYFSV is in a functional domain				

HIV CTL Epitopes

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(273-282 IIIB)	RT(273-282) • Binds HLA-B*3501	VPLDEDFRKY	HIV-1 infection	human(B35)	[Shiga et al.(1996)]
RT(273-282 SF2)	RT(273-282) • A CTL clone responsive to this epitope was obtained • 4/7 B35 positive individuals had a CTL response to this epitope • NOTE	VPLDKDFRKY	HIV-1 infection	human(B*3501)	[Tomiyama et al.(1997)]
RT(273-282 IIIB)	RT(273-282) • HIV IIIB proteins were used to define the range of CTL epitopes recognized by three lab workers accidentally infected with HIV-1 IIIB • VPLDKDFRKY, a variant found in HIV MN, was not recognized • VPHDDEDFRKY, a variant found in HIV YU2, was not recognized • This epitope was type-specific and conserved in only one other B subtype sequence	VPLDEDFRKY	HIV-1 infection	human(B35)	[Sipsas et al.(1997)]
RT(295-302 IIIB)	RT(283-290) • HIV IIIB proteins were used to define the range of CTL epitopes recognized by 3 lab workers accidentally infected with HIV-1 IIIB • TAFTIPST, a variant found in HIV-1 CAMI, was also recognized • TAFTIPSV, a variant found in HIV-1 VE1RT, was also recognized • TVFTIPSI, a variant found in HIV-1 MANC, was also recognized	TAFTIPSI	HIV-1 infection	human(B51)	[Sipsas et al.(1997)]
RT(296-304 IIIB)	RT(296-304) • Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study • KIKYQYNVL, a naturally occurring variant, was found in one mother	GIRYQYNVL	HIV-1 infection	human(unk)	[Wilkes et al.(1996)]

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(308-320)	RT(308-320)	WKGS ^P AIFQSSMT	HIV-1 infection	human(B7)	[Brander & Walker(1995)]
		• Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study			
RT(311-319 SF2)	RT(311-319) • Binds HLA-B*3501	SPAIFQSSM	HIV-1 infection	human(B35)	[Shiga et al.(1996)]
RT(311-319 SF2)	RT(311-319) • Per. comm. from C. Hey and D. Ruhl to C. Brander and B. Walker	SPAIFQSSMT ?	HIV-1 infection	human(B7)	[Brander & Walker(1997b)]
RT(311-319 SF2)	RT(311-319) • Per. comm. from C. Hey and D. Ruhl to C. Brander and B. Walker	SPAIFQSSMT ?	HIV-1 infection	human(A3)	[Tomiyama et al.(1997)]
RT(325-333 IIIB)	RT(313-321) • Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study	AIFQSSMTK • AIFQSSMTR and AIFLSSMTK, naturally occurring variants, were found in infant, and are recognized • TISQSSMTK, a naturally occurring variant, was found in infant and is not recognized	HIV-1 infection	human(A3)	[Wilkes et al.(1996)]
RT(325-333)	(313-321) • Study of the fine specificity of an A3-like super-type epitope (the A3 super-type includes A*0301, A*1101, A*3101, A*3301, and A*6801)	AIFQSSMTK • A3 super-type is characterized by a hydrophobic or hydroxyl containing anchor residue at position 2, and a positive charge in the C-term position • While most lines were specific, promiscuous cloned CTL lines were also derived from HIV+ donors that could recognize epitope presented by either A3 or A11 or A*6801 • Alanine substitutions throughout the epitope and natural variants indicate that the same amino acid positions are critical for presentation by either MHC molecule, A3 or A11	HIV-1 infection	human(A11,A3,A*6801)	[Threlkeld et al.(1997)]

HIV CTL Epitopes

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(325-333 LAI)	RT(313-321)	AIFQSSMTK	HIV-1 infection	human(A3)	[Cao et al.(1997)]
		• The consensus peptide of B and D clade viruses is AIFQSSMTK			
		• The consensus peptide of a subset of As is AIFQASMTK and it is less able to stimulate the CTL clone			
		• The consensus peptide of a subset of As is SIFQSSMTK and is as reactive as the originally defined epitope			
RT(325-349 PV22)	RT(313-337)	AIFQSSMTKILEPFR-	HIV-1 infection	human(A11)	[Jassoy et al.(1993)]
		KQNPDIVTYQ			
		• HIV-1 specific CTLs release γ -IFN, and α - and β -TNF			
RT(325-349)	RT(313-337)	AIFQSSMTKILEPFR-	HIV-1 infection	human(A11)	[Price et al.(1995)]
		KQNPDIVTYQ			
		• Study of cytokines released by HIV-1 specific activated CTL			
RT(325-333)	RT(313-321)	AIFQSSMTK	HIV-1 infection	human(A3.1)	[Brander & Walker(1995)]
		• Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study			
RT(325-333 LAI)	RT(313-321)	AIFQSSMTK	No CTL shown	human(A11)	[Zhang et al.(1993)]
		• Exploration of A11 binding motif, based on Nixon et al. 1991; this peptide is mislabeled as a Gag peptide in Zhang et al.			
RT(325-333 LAI)	RT(313-321)	AIFQSSMTK	HIV-1 infection	human(A11)	[McMichael & Walker(1994)]
		• Review of HIV CTL epitopes; defined as minimal peptide by titration curve			

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(325-333 LAI)	RT(313-321)	AIFQSSMFTK	?	human(A33)	[Ariyoshi, unpublished(1995)]
		• Defined as minimal peptide by titration curve, S. Rowland-Jones, per. comm.			
RT(342-366 LAI)	RT(330-354)	NPDIVTYQYMDDLV-	HIV-1 infection	human(A11)	[Walker et al.(1989)]
		GSDLEIGQHR			
		• One of five epitopes defined for RT specific CTL clones in this study			
RT(342-350 LAI)	RT(330-338)	HPDIVTYQY	HIV-1 infection	human(B35)	[McMichael & Walker(1994)]
		• Review of HIV CTL epitopes; defined as minimal peptide by titration curve			
RT(329-337)	RT(330-338)	HPDIVTYQY	HIV infection	human(B35)	[Rowland-Jones et al.(1995)]
		• NPDIVTYQY preferred sequence for some CTL clones, HIV-2 NPDVLIQY is also recognized			
RT(328-336 IIIB)	RT(330-338)	NPDIVTYQY	HIV-1 infection	human(B35)	[Shiga et al.(1996)]
		• Binds HLA-B*3501			
RT(328-336 IIIB)	RT(330-338)	NPDIVTYQY	HIV-1 infection	human(B*3501)	[Tomiyama et al.(1997)]
		• A CTL clone responsive to this epitope was obtained			
		• 3/7 B35 positive individuals had a CTL response to this epitope			
		• D to E, or V to I, substitutions at positions 3 or 5, respectively, reduces CTL activity and binding to B*3501			
RT(328-336 IIIB)	RT(330-338)	NPDIVTYQY	HIV-1 infection	human(B35)	[Sipsas et al.(1997)]
		• HIV IIIB proteins were used to define the range of CTL epitopes recognized by 3 lab workers accidentally infected with HIV-1 IIIB			
		• NPDIIHYQY, a variant found in HIV-1 JRCSF, was also recognized			
		• NPEIVIYQY, a variant found in HIV-1 JRU2RF, was also recognized			
		• NPDLVITYQY, was also recognized			

HIV CTL Epitopes

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(346-354 LAI)	RT(344-342)	VIVQYMDDLV	HIV infection	human(A2)	[Harrer et al.(1996a)]
	• The substitution VIVQYVDDL abrogates CTL response and confers drug resistance; YMDD is a highly conserved motif				
RT(LAI)	RT(335-344)	IYQYMDDLYV	HIV-1 infection	human(A*0201)	[van der Burg et al.(1997)]
	• Recognized by CTL from a progressor, spans important RT functional domain				
	• A previous study determined that this was an epitope recognized by a long term survivor				
RT(359-383 HXB2)	RT(347-371)	DLEIGQHRTKIEELR-QHLLRWGLTT	HIV-1 infection	human(Bw60)	[Walker et al.(1989)]
	• One of five epitopes defined for RT specific CTL clones in this study				
RT(LAI)	RT(358-367)	EELRQHLLRW	HIV-1 infection	human(B44)	[van der Burg et al.(1997)]
	• The only epitope recognized by CTL from a long term survivor in two samples taken six years apart				
	• Recognized by CTL from a progressor, EILKEPVGHGV and TWETWWTEYIW were also recognized				
RT(LAI)	RT(398-407)	PIVLPEKDSW	HIV-1 infection	human(B*5701)	[van der Burg et al.(1997)]
	• Recognized by CTL from a progressor and a long term survivor, KITTESVIW was also recognized				
RT(415-426 IIIB)	RT(415-426)	LVGKLNWASQIY		human(Bw62)	[Brander & Walker(1997a)]
	• P. Johnson, pers. comm.				
RT(438-446 IIIB)	RT(426-434)	YPGIKVVRQL	HIV-1 infection	human(B42)	[Wilkes et al.(1996)]
	• Epitope defined in the context of the Pediatric AIDS Foundation ARUEL project mother-infant HIV transmission study				

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(448-456 SF2)	RT(448-456) • Binds HLA-B*3501 and B*5101	IPLTEEAEL	HIV-1 infection	human(B35,B51)	[Shiga et al.(1996)]
RT(448-456 SF2)	RT(448-456) • A CTL clone responsive to this epitope was obtained • Only 1/7 B35 positive individuals had a CTL response to this epitope • An E to K substitution at position 5 abrogates specific lysis, but not binding to B*3501 • An I to V substitution at position 1, P to Q at position 2, and E to K at 5, abrogates specific lysis and binding to B*3501 • An I to V substitution at position 1 did not alter reactivity	IPLTEEAEL	HIV-1 infection	human(B*3501)	[Tomiyama et al.(1997)]
RT(461-485 HXB2)	RT(449-473) • One of five epitopes defined for RT specific CTL clones in this study	PLTTEEAELELAENRE- ILKEPVHGYY	HIV-1 infection	human(A2)	[Walker et al.(1989)]
RT(LAI)	RT(463-472) • Recognized by CTL from a long term survivor, SPIETVPVKL was also recognized • Recognized by CTL from a progressor, EELRQHILLRW and TWETWWTEYW were also recognized	EILKEPVGHV	HIV-1 infection	human(A*0201)	[van der Burg et al.(1997)]
RT(476-484)	RT(464-472) • CTL clones recognize naturally processed peptide; peptide abundance corresponded to level of CTL killing	ILKEPVHGKV	HIV-1 infection	human(A2)	[Tsomides et al.(1994)]
RT(476-484)	RT(464-472) • This epitope were included as a positive control • Binding affinity to A*0201 was measured, C _{1/2max} /μM	ILKEPVHGKV	In vitro stimulation	HLA(A*0201)	[Konya et al.(1997)]

HIV CTL Epitopes

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(476-484)	RT(464-472)	ILKEPVHGV	HIV-1 infection	human(A2)	[Cao et al.(1997)]
	• The consensus peptide of B and D clade viruses and some As have the sequence ILKEPVHGV				
	• The consensus peptide of a subset of A clade viruses, ILKDPVHGV, is not cross-reactive				
RT(468-476)	RT(464-472)	ILKEPVHGV	<i>in vitro</i> stimulation	human(A*0201)	[van der Burg et al.(1996)]
	• Immunogenic in humans, slow dissociation rate, associated with immunogenicity in transgenic HLA-A*0201/K ^b mice				
	• CTL generated by <i>in vitro</i> stimulation of PBMC derived from uninfected individual				
RT(468-476)	RT(464-472)	ILKEPVHGV	<i>in vitro</i> stimulation	human(A*0201)	[van der Burg et al.(1995)]
	• Binds HLA-A*0201 – CTL generated by <i>in vitro</i> stimulation of PBMC from an HIV negative donor				
RT(476-484)	RT(464-472)	ILKEPVHGV	HIV-1 infection	human(A*0201)	[Pogue et al.(1995)]
	• Mutational study: position 1 I to Y increases complex stability with HLA-A*0201				
pol(476-484)	RT(464-472)	ILKEPVHGV	HIV-1 infection	human(A*0201)	[Goulder et al.(1997a)]
	• Identical twin hemophiliac brothers were both infected with the same batch of factor VIII				
	• One had a response to gag A2 epitope SLYNTVATL, the other to pol A2 epitope ILKEPVHGV				
	• Viral sequencing from the twin that had no response to SLYNTVATL indicated his virus had the substituted form SLHNAVAVL				
	• 71% of an additional set of 22 HIV-1 infected HLA-A*0201 positive donors preferentially responded to gag SLYNTVATL				
	• Those individuals with a pol ILKEPVHGV response tended to have mutations in or around SLYNTVATL				

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(476-484)	RT(464-472) IIKEPVHGV	HIV-1 infection	human(A2)	[Yang et al.(1996)]	
	• CD4+ cell lines acutely infected with HIV were studied to determine their susceptibility to lysis by CTL				
	• Clones specific for RT lysed HIV-1 infected cells at lower levels than Env or Gag specific clones				
	• The distinction was thought to be due to lower expression of RT relative to Env and Gag				
	• CTL can lyse infected cells early after infection, possibly prior to viral production				
RT(476-484)	RT(464-472) IIKEPVHGV	HIV-1 infection	human(A2)	[Yang et al.(1997)]	
	• CTL inhibit HIV-1 replication at effector cell concentrations comparable to those found <i>in vivo</i>				
	• CTL produced HIV-1-suppressive soluble factors – MIP-1 α , MIP-1 β , RANTES, after antigen-specific activation				
	• CTL suppress HIV replication more efficiently in HLA-matched cells				
RT(309-317)	RT(464-472) IIKEPVHGV	HIV infection	human(A2)	[Moss et al.(1995)]	
	• Two clones were obtained with different TCR usage, V β 1 and V β 21				
	• The position of this epitope was reported to be located at positions 309-317 by Moss et al.				
RT(476-485 LAI)	RT(464-473) IIKEPVHGVY	HIV-1 infection	human(Bw62)	[McMichael & Walker(1994)]	
	• Review of HIV CTL epitopes; defined as minimal peptide by titration curve				
	• Also: P. Johnson 1991 and pers. comm. P. Johnson				
RT(476-484)	RT(464-472) IIKEPVHGV	HIV-1 infection	human(A2)	[Musey et al.(1997)]	
	• Cervical CTL clones from an HIV infected woman recognized this epitope				
RT(476-484)	RT(464-472) IIKEPVHGV	none	human(A*0201)	[Walter et al.(1997)]	
	• HLA-A2 heavy chain and β 2-microglobulin expressed in <i>E. coli</i> were refolded in the presence of this peptide				
	• The HLA-A2-peptide complex elicited HLA-A2 peptide specific CTL response in cells lacking HLA-A2				
	• Suggests that preformed HLA-peptide complexes could provide an alternate to intracellular processing for immunogens				

HIV CTL Epitopes

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(476-484 LAI)	RT(464-472)	ILKEPVHGV	HIV-1 infection	human(A2)	[Tsimides et al.(1991)]
	• Precise identification of the nonamer that binds to A2				
RT(476-484 LAI)	RT(464-472)	ILKEPVHGV	no CTL shown	human(A2)	[Comman et al.(1994)]
	• Promotes assembly of HLA-A2 molecules in T2 cell lysates				
RT(510-518)	RT(464-472)	ILKEPVHGV	none	human(A2)	[Parker et al.(1992)]
	• Studied in the context of HLA-A2 peptide binding				
RT(495-519 LAI)	RT(483-507)	EIQKQGQQGQWTYQIY-QEPFKNLKTG	HIV-1 infection	human(A11)	[Walker et al.(1989)]
	• One of five epitopes defined for RT specific CTL clones in this study				
RT(507-519 LAI)	RT(495-507)	QIYQEPFKNLKTG	HIV-1 infection	human(A11)	[Johnson & Walker(1994)]
	• This epitope was listed in a review				
RT(507-516)	RT(495-505)	QIYQEPFKNLK	HIV-1 infection	human(unk)	[Price et al.(1995)]
	• Study of cytokines released by HIV-1 specific activated CTL				
RT(518-526 U455)	RT(519-527)	DVKQLTEVV	?	human(A28)	[Brander & Walker(1997a)]
	• S. Rowland-Jones, pers. comm. Reacts with clade A consensus (U455), HLA-subtype A*6802				
RT(LAI)	RT(529-538)	KITTESTIVIW	HIV-1 infection	human(B*5701)	[van der Burg et al.(1997)]
	• Recognized by CTL from a progressor and a long term survivor, PIVLPEKDSW was also recognized				

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(547-556 IIIB)	RT(547-556)	PIQKETWETW	HIV-1 infection	human(B53/Cw2)	[Wilkes et al.(1996)]
	• Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study				
	• PIQKEAWETW, a naturally occurring variant, was found in non-transmitting mother and is recognized				
RT(LAI)	RT(552-561)	TWETWWTEYYW	HIV-1 infection	human(B44)	[van der Burg et al.(1997)]
	• Recognized by CTL from two progressors, EILKEPVGHGV and EELRQHLLRW were also recognized by one, and RETKLGKAGY was also recognized by the other				
RT(587-597 SF2)	RT(587-596)	EPIVGAE ^T FY	HIV-1 infection	human(B35)	[Shiga et al.(1996)]
	• Binds HLA-B*3501, but not presented by B51, in contrast to the peptide EPIVGAETF				
RT(587-597 SF2)	RT(587-595)	EPIVGAE ^T TF	HIV-1 infection	human(B*3501)	[Tomiyama et al.(1997)]
	• A CTL clone responsive to this epitope was obtained				
	• 5/7 B35 positive individuals had a CTL response to this epitope				
	• An E to D substitution at position 1, and V to I at position 4, reduces activity but not binding to B*3501				
RT(587-596 SF2)	RT(587-595)	EPIVGAE ^T FF	HIV-1 infection	human(B35,B51)	[Shiga et al.(1996)]
	• Binds HLA-B*3501, and presented by B51 – CTL could not kill RT-vaccinia virus infected cells that expressed B51; but could kill B35 expressing RT-vaccinia virus infected cells				
RT(LAI)	RT(589-602)	IVGAETFYVDGAAS	HIV-1 infection	human(A*6802)	[van der Burg et al.(1997)]
	• Recognized by CTL from a long term survivor that recognized a set of 5 overlapping peptides spanning IVGAETFYVDGAAS as well as PIVLPEKDSSW and KITTESIVIW				
	• A*6802 is a subset of HLA-A28				

HIV CTL Epitopes

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(591-600 IIIB)	RT(591-600)	GAETFYVDGA	HIV-1 infection	human(B45)	[Wilkes et al.(1996)]
	• Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study				
	• GVETFYVDGA, a naturally occurring variant, was recognized				
RT(592-602 LAI)	RT(592-602)	AETFYVDGAAN	?	human(A28)	[Brander & Walker(1997a)]
	• P. Johnson pers. comm.				
RT(593-603 IIIB)	RT(593-603)	ETFYVVDGAANR	HIV-1 infection	human(A26)	[Wilkes et al.(1996)]
	• Epitope defined in the context of the Pediatric AIDS Foundation ARIEL project mother-infant HIV transmission study				
	• ETYYVNGAANR, a naturally occurring variant, was found in non-transmitting mother and is recognized				
RT(648-672 PV22)	RT(636-660)	AIYLAQDSGLEVNII- VTDSQYALGI	HIV-1 infection	human(B14)	[Kalams et al.(1994)]
	• A CTL response used to study gene usage in HLA-B14 response				
RT(648-672)	RT(636-660)	AIYLAQDSGLEVNII- VTDSQYALGI	HIV-1 infection	human(unk)	[Price et al.(1995)]
	• Study of cytokines released by HIV-1 specific activated CTL				

Location	WEAU	Sequence	Immunogen	Species(HLA)	References
RT(648-672)	RT(640-660)	ALQDSGLEVVTDSQY-	HIV-1 infection	human(B14)	[Brander & Walker(1995)]
		ALGI			
	• Unpublished, S. Kalams				
RT(640-648 HXB2R)	RT(640-648)	ALQDSGLEV	no CTL shown	human(A2)	[Brander et al.(1995a)]
	• Epitope studied in the context of inclusion in a synthetic vaccine				
RT(640-648 HXB2R)	RT(640-648)	ALQDSGLEV	peptide vaccine	human(A2.1)	[Brander et al.(1996), Brander et al.(1995b)]
	• This epitope was recognized by PBMC from 3/14 HIV+ asymptomatic patients				
	• This epitope was used along with Env CTL epitope TLTSCTNSV and a tetanus toxin T helper epitope for a synthetic vaccine				
	• This vaccine failed to induce a CTL response, although a helper response was evident				
RT(663-672 IIIB)	RT(651-660)	VTDSQYALGI	HIV-1 infection	human(Cw8)	[Brander & Walker(1997a)]
	• Unpublished, P. Johnson; defined as minimal peptide by titration curve in McMichael94				
	• Published here in 1995 as B14, but B14 transfected cells did not present the peptide				
IN(956-964 HXB2R)	RT(956-964)	LLWKGEGAV	no CTL shown	human(A2)	[Parker et al.(1992), Parker et al.(1994)]
	• Studied in the context of HLA-A2 peptide binding				
IN(956-964 HXB2R)	RT(956-964)	LLWKGEGAV	no CTL shown	human(A2)	[Brander et al.(1995a)]
	• No CTL activity found in HIV infected subjects, epitope studied in the context of inclusion in a synthetic vaccine				
IN(576-584)	RT(956-964)	LLWKGEGAV	<i>in vitro</i> stimulation	human(A*0201)	[van der Burg et al.(1996)]
	• Slow dissociation rate, associated with immunogenicity in transgenic HLA-A*0201/K ^b mice				
	• CTL generated by <i>in vitro</i> stimulation of PBMC derived from uninfected individual				